PHYS355
Introduction to Biological Physics

Spring 2014
103 BRK

Instructor: Ching-Hwa Kiang
Office: 226 Brockman Hall for Physics
Phone: (713) 348-4130
chkiang@rice.edu

T.A.: Ruiming Jin
Office: BRK 264
Phone: (o) (713) 348-4131
email: Ruiming.Jin@rice.edu
Office Hours: TBD

Class meetings
The class will meet Tuesday and Thursday from 1:00pm to 2:15pm in 103 Brockman Hall for Physics.

Reference Texts

- Philip Nelson, *Biological Physics*, W. H. Freeman and Company (2004), ISBN 0716743728.
- M. Daune, *Molecular Biophysics: Structures and Dynamics*, Oxford University Press (1999).
- L. Stryer, *Biochemistry*, 5th ed., W. H. Freeman, New York (2003).
- Cantor and Schimmel, *Biophysical Chemistry, I, II, III*, W. H. Freeman, New York (1980).
- D. A. McQuarrie, *Statistical Mechanics*, Harper & Row, New York (1976).

Course Description
This course will cover topics in frontier of biological physics.

Important Dates

14 January 2014	First day of class
1–9 March 2014	Spring Break, no classes
3–4 April 2014	Midterm recess, no classes
24 April 2014	Last day of class

Honor Code
The Rice Honor Code applies.

Homework Policy
Homework assignments will be given every week on Thursday. Homework will be due the following Thursday in the beginning of class. Late homework will not be accepted. You are allowed to collaborate with fellow students on your homework. You may not consult answer keys (from previous years, *etc.*). The homework you turn in must represent your own understanding.

Midterm Report
The midterm report is a short report on the topic and paper you chose to present at the end of the term. The selected topic/paper must be related to biological physics. Detailed instructions about the term paper will be given later in the semester.

Presentation
Each person will give a 45 minute presentation in class. The presentation should be based on a topic related to biological physics of your choice.

Credit

Homework	40 %
Midterm report	20 %
Presentation	40 %

Tentative list of the topics to be covered
DNA
RNA
Proteins
Cells
Bacteria
Eukaryotic systems
Virus
Biomaterials
Single molecule techniques
Cancer and other diseases
Fluctuations and noise
Biological networks
Evolution

If you have a documented disability that will impact your work in this class, please contact me to discuss your needs during the first two weeks of class. Additionally, you will need to register with the Disability Support Services Office in the Ley Student Center.